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TECH CENTER 1600/2900

SEQUENCE LISTING

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<110> KALEEN, ZHONGYILI  
MORELL, MATTHEW  
RAHMAN, SADEQUR

<120> REGULATION OF GENE EXPRESSION IN PLANTS

<130> 054270/0126

<140> 09/508,377

<141> 2000-06-09

<150> AU PP 2509

<151> 1998-03-20

<150> PCT/AU98/00743

<151> 1998-09-11

<150> AU PP 9108

<151> 1997-09-12

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<213> *Triticum tauschii*

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Thr Ala Glu Asp Gly Val Gly Asp Leu Pro Ile Tyr Asp Leu Asp Pro
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Leu Asp Gln Lys His Ser Ile Glu Lys His Glu Gly Gly Leu Glu Glu
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<213> Triticum tauschii

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<213> *Triticum tauschii*

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<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: GCN 4  
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<210> 19

<211> 21

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Illustrative  
oligonucleotide

<400> 19

ctcgttgctt cctactccac t

21

<210> 20

<211> 135

<212> DNA

<213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: DNA construct

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<210> 21  
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 <223> Description of Artificial Sequence: DNA construct

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<210> 22  
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 <223> Description of Artificial Sequence: DNA construct

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<210> 23  
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<210> 25  
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<400> 25  
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<210> 26  
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<220>  
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<400> 26  
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<210> 27  
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<400> 27  
 agccacgatt atgctgtcga tgg 23

<210> 28  
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<400> 28  
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<210> 29  
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<400> 29  
 aaggccacat agatctcg 18

<210> 30  
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 <212> PRT  
 <213> *Oryza sativa*

<400> 30  
 Ala Thr Ala Arg Lys Asn Lys Thr Met Val Thr Val Val Glu Glu Val  
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<210> 31  
 <211> 16  
 <212> PRT  
 <213> *Zea mays*

<400> 31  
 Ala Thr Val Gln Glu Asp Lys Thr Met Ala Thr Ala Lys Gly Asp Val  
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<210> 32  
 <211> 21  
 <212> PRT  
 <213> *Oryza sativa*

<400> 32  
 Ala Ala Gly Ala Ser Gly Glu Val Met Ile Pro Glu Gly Glu Ser Asp  
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Gly Met Pro Val Ser  
                   20

<210> 33  
 <211> 20  
 <212> PRT  
 <213> *Triticum tauschii*

<400> 33  
 Ala Ala Ser Pro Gly Lys Val Leu Val Pro Asp Gly Glu Ser Asp Asp  
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Leu Ala Ser Tyr  
                   20

<210> 34  
 <211> 21  
 <212> PRT  
 <213> *Zea mays*

<400> 34  
 Ala Ala Ala Ala Arg Lys Ala Val Met Val Pro Glu Gly Glu Asn  
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Asp Gly Leu Ala Ser  
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<210> 35  
<211> 19  
<212> PRT  
<213> Triticum tauschii

<400> 35  
Ser Arg Val Cys Ala Lys Arg Leu His His Gly Asn Ser Arg Trp Cys  
1 5 10 15

Trp Arg Pro

<210> 36  
<211> 20  
<212> PRT  
<213> Triticum tauschii

<400> 36  
Pro Cys Leu Arg Gln Glu Thr Thr Pro Trp Gln Gln Leu Lys Met Val  
1 5 10 15

Leu Ala Thr Phe  
20

<210> 37  
<211> 16  
<212> PRT  
<213> Triticum tauschii

<400> 37  
Gly Pro Tyr Val Ala Glu Leu Ser Pro Glu Gly Pro Ala Ala Pro Pro  
1 5 10 15

<210> 38  
<211> 161  
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<213> Triticum tauschii

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Thr Thr Tyr Tyr Met Leu Ala Pro Lys Gly His Phe Tyr Asn Tyr  
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tct ggc tgt ggg aat acc ttc aac tgt aat cat cct gtg gtt cgt caa 95  
Ser Gly Cys Gly Asn Thr Phe Asn Cys Asn His Pro Val Val Arg Gln  
20 25 30

ttc att gta gat tgt tta aga tac tgg gtg acg gaa atg cat gtt gat 143  
 Phe Ile Val Asp Cys Leu Arg Tyr Trp Val Thr Glu Met His Val Asp  
                   35                  40                  45

ggt ttt cgt ttt gac ctt 161  
 Gly Phe Arg Phe Asp Leu  
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 <213> Triticum tauschii

<400> 39  
 Thr Thr Tyr Tyr Met Leu Ala Pro Lys Gly His Phe Tyr Asn Tyr Ser  
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                   20                  25                  30  
 Ile Val Asp Cys Leu Arg Tyr Trp Val Thr Glu Met His Val Asp Gly  
                   35                  40                  45  
 Phe Arg Phe Asp Leu  
                   50

<210> 40  
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 <213> Triticum tauschii

<400> 40  
 Ile Leu His Thr Ile Cys Leu His Pro Arg Asp Thr Phe Ile Thr Ile  
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 Leu Ala Val Gly Ile Pro Ser Thr Val Ile Ile Leu Trp Phe Val Asn  
                   20                  25                  30  
 Ser Leu Ile Val Asp Thr Gly Arg Lys Cys Met Leu Met Val Phe Val  
                   35                  40                  45  
 Leu Thr  
                   50

<210> 41  
 <211> 49  
 <212> PRT  
 <213> Triticum tauschii

<400> 41  
 Tyr Tyr Ile Leu Tyr Ala Cys Thr Gln Gly Thr Leu Leu Leu Phe Trp  
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Leu Trp Glu Tyr Leu Gln Leu Ser Ser Cys Gly Ser Ser Ile His Cys  
                   20                                  25                                  30

Arg Leu Phe Lys Ile Leu Gly Asp Gly Asn Ala Cys Trp Phe Ser Phe  
                   35                                  40                                  45

Pro

<210> 42  
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 attatccttt agggggatag ataatagtag atactacatg cttgcaccta agggagagtt 120  
 ttataattat tctggttggt gaaatacctt caattgtaat catcctgtag tccgtgaatt 180  
 tatagtggat tgcttgagat actgggtaac agaaatgcat gttgatgggt ttcgttttga 240  
 ccttgcacat atactg 256

<210> 43  
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 aactattctg gctgtgggna taccttcaac tgtaatcatc ctgtgggttcg tcaattcatt 180  
 gtagattgtt taagntactg ggtgacggaa atgcatgttg ntggttttcg ttttgacctt 240

gcatctnctt naaa

254

<210> 44

<211> 21

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer

<400> 44

tcgtgggttat gaaaagcttg g

21

<210> 45

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer

<400> 45

acaattggaa tccaaatgca

20

<210> 46

<211> 20

<212> DNA

<213> Artificial Sequence

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<223> Description of Artificial Sequence: Primer

<400> 46

ttgacggctt gaatggtttc

20

<210> 47

<211> 22

<212> DNA

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<223> Description of Artificial Sequence: Primer

<400> 47

aatggataga tttccaaga gg

22

<210> 48

<211> 20

<212> DNA

<213> Artificial Sequence

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<223> Description of Artificial Sequence: Primer

<400> 48  
caggaccttc cctggagagg 20

<210> 49  
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<223> Description of Artificial Sequence: Primer

<400> 49  
ggcacgagtg tgtgtacctg ta 22

<210> 50  
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<220>  
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<210> 51  
<211> 20  
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<400> 51  
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<400> 53

ctgcatttgg attccaattg

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<210> 54

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21

<210> 55

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<223> Description of Artificial Sequence: Primer

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20

<210> 56

<211> 20

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<223> Description of Artificial Sequence: Primer

<400> 56

ccattgaaag gtatttcacc

20

<210> 57

<211> 19

<212> DNA

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<223> Description of Artificial Sequence: Primer

<400> 57

taacttattg acataccgg

19

<210> 58

<211> 21

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<400> 58

ctggagttcc aaaacggcta c

21

<210> 59

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<212> DNA

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attcttcaag ccaccatctc

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<210> 60

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<400> 60

tattgttatt tccaggggag a

21

<210> 61

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<212> DNA

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<400> 61

tgctgcattg cctgatcgaa

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<210> 62

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<212> DNA

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<223> Description of Artificial Sequence: Primer

<400> 62

aacaccagg cccgtccatt

20

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&lt;222&gt; (412) .. (480)

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Phe Pro Phe Phe Phe Phe Gly Xaa Gly Met Ala Cys Trp Met Xaa Phe	
1 5 10 15	
ccc aat gaa ttt cca tgg agt gag aga gat agt tgg atn agg gat cgc	96
Pro Asn Glu Phe Pro Trp Ser Glu Arg Asp Ser Trp Xaa Arg Asp Arg	
20 25 30	
gnt tcc ngg aac tgt att ttt ttc ccc ngc ggg gga aat ggc gtt agt	144
Xaa Ser Xaa Asn Cys Ile Phe Phe Pro Xaa Gly Gly Asn Gly Val Ser	
35 40 45	
gtc nac cca ggc cct ggt gtt acc acg gct ttg atc att ctt cgt ttc	192
Val Xaa Pro Gly Pro Gly Val Thr Thr Ala Leu Ile Ile Leu Arg Phe	
50 55 60	
att ctg ata tat att ttc tca ttc ttt ttc ttc ctg ttc ttg ctg taa	240
Ile Leu Ile Tyr Ile Phe Phe Phe Phe Phe Phe Leu Phe Leu Leu	
65 70 75	
ctg caa gtt gtg gcg ttt ttt cac tat tgt agt cat cct tgc att ttg	288
Leu Gln Val Val Ala Phe Phe His Tyr Cys Ser His Pro Cys Ile Leu	
80 85 90 95	
cag gcg ccg tcc tga gcc gcg cgg cct ctc cag gga agg tcc tgg tgc	336
Gln Ala Pro Ser Ala Ala Arg Pro Leu Gln Gly Arg Ser Trp Cys	
100 105 110	
ctg acg gcg aga gng acg act tgg caa gtc cgg cgc aac ctg aag aat	384
Leu Thr Ala Arg Xaa Thr Thr Trp Gln Val Arg Arg Asn Leu Lys Asn	
115 120 125	
tac agg tac aca cac tcg tgc cgg taa atc ttc ata caa tcg tta ttc	432
Tyr Arg Tyr Thr His Ser Cys Arg Ile Phe Ile Gln Ser Leu Phe	
130 135 140	
act tac caa atg ccg gat gaa acc aac cac gga tgc gtc agg ttt cga	480
Thr Tyr Gln Met Pro Asp Glu Thr Asn His Gly Cys Val Arg Phe Arg	
145 150 155	

&lt;210&gt; 64

&lt;211&gt; 157

&lt;212&gt; PRT

&lt;213&gt; Triticum tauschii

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&lt;221&gt; MOD\_RES

&lt;222&gt; (8)

&lt;223&gt; Any amino acid

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			20					25					30		

Xaa	Ser	Xaa	Asn	Cys	Ile	Phe	Phe	Pro	Xaa	Gly	Gly	Asn	Gly	Val	Ser
		35					40					45			

Val	Xaa	Pro	Gly	Pro	Gly	Val	Thr	Thr	Ala	Leu	Ile	Ile	Leu	Arg	Phe
	50					55					60				

Ile	Leu	Ile	Tyr	Ile	Phe	Ser	Phe	Phe	Phe	Phe	Leu	Phe	Leu	Leu	Leu
65					70					75					80

Gln	Val	Val	Ala	Phe	Phe	His	Tyr	Cys	Ser	His	Pro	Cys	Ile	Leu	Gln
				85					90					95	

Ala	Pro	Ser	Ala	Ala	Arg	Pro	Leu	Gln	Gly	Arg	Ser	Trp	Cys	Leu	Thr
			100					105					110		

Ala	Arg	Xaa	Thr	Thr	Trp	Gln	Val	Arg	Arg	Asn	Leu	Lys	Asn	Tyr	Arg
			115				120					125			



Tyr Thr His Ser Cys Arg Ile Phe Ile Gln Ser Leu Phe Thr Tyr Gln  
 130 135 140

Met Pro Asp Glu Thr Asn His Gly Cys Val Arg Phe Arg  
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Pro Met Asn Phe His Gly Val Arg Glu Ile Val Gly Xaa Gly Ile Ala  
 20 25 30

Xaa Pro Gly Thr Val Phe Phe Ser Pro Ala Gly Glu Met Ala Leu Val  
 35 40 45

Ser Thr Gln Ala Leu Val Leu Pro Arg Leu Ser Phe Phe Val Ser Phe  
 50 55 60

Tyr Ile Phe Ser His Ser Phe Ser Ser Cys Ser Cys Cys Asn Cys Lys  
 65 70 75 80

Leu Trp Arg Phe Phe Thr Ile Val Val Ile Leu Ala Phe Cys Arg Arg  
 85 90 95

Arg Pro Glu Pro Arg Gly Leu Ser Arg Glu Gly Pro Gly Ala Arg Arg  
 100 105 110

Glu Xaa Arg Leu Gly Lys Ser Gly Ala Thr Arg Ile Thr Gly Thr His  
 115 120 125

Thr Arg Ala Gly Lys Ser Ser Tyr Asn Arg Tyr Ser Leu Thr Lys Cys  
 130 135 140

Arg Met Lys Pro Thr Thr Asp Ala Ser Gly Phe Glu  
 145 150 155

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 <223> Any amino acid

<400> 66  
 Pro Phe Phe Phe Leu Trp Xaa Gly Asp Gly Leu Leu Asp Xaa Val Pro  
 1 5 10 15

Gln Ile Ser Met Glu Glu Arg Leu Asp Xaa Gly Ser Arg Phe Xaa Glu  
 20 25 30

Leu Tyr Phe Phe Pro Xaa Arg Gly Lys Trp Arg Cys Xaa Pro Arg Pro  
 35 40 45

Trp Cys Tyr His Gly Phe Asp His Ser Ser Phe His Ser Asp Ile Tyr  
 50 55 60  
 Phe Leu Ile Leu Phe Leu Pro Val Leu Ala Val Thr Ala Ser Cys Gly  
 65 70 75 80  
 Val Phe Ser Leu Leu Ser Ser Leu His Phe Ala Gly Ala Val Leu Ser  
 85 90 95  
 Arg Ala Ala Ser Pro Gly Lys Val Leu Val Pro Asp Gly Glu Xaa Asp  
 100 105 110  
 Asp Leu Ala Ser Pro Ala Gln Pro Glu Glu Leu Gln Val His Thr Leu  
 115 120 125  
 Val Pro Val Asn Leu His Thr Ile Val Ile His Leu Pro Asn Ala Gly  
 130 135 140  
 Asn Gln Pro Arg Met Arg Gln Val Ser  
 145 150

<210> 67  
 <211> 816 .  
 <212> PRT  
 <213> Oryza sativa

<400> 67  
 Met Leu Cys Leu Thr Ser Ser Ser Ser Ser Ala Pro Pro Pro Leu Leu  
 1 5 10 15  
 Pro Ser Ala Asp Arg Pro Ser Pro Gly Ile Ala Gly Gly Gly Gly Asn  
 20 25 30  
 Val Arg Leu Ser Val Val Ser Ser Ser Pro Arg Arg Ser Trp Pro Gly  
 35 40 45  
 Lys Val Lys Thr Asn Phe Ser Val Pro Ala Thr Ala Arg Lys Asn Lys  
 50 55 60  
 Thr Met Val Thr Val Val Glu Asp Val Asp His Leu Pro Ile Tyr Asp  
 65 70 75 80  
 Leu Asp Pro Lys Leu Glu Glu Phe Lys Asp His Phe Asn Tyr Arg Ile  
 85 90 95  
 Lys Arg Tyr Leu Asp Gln Lys Cys Leu Ile Glu Lys His Glu Gly Gly  
 100 105 110  
 Leu Glu Glu Phe Ser Lys Gly Tyr Leu Lys Phe Gly Ile Asn Thr Val  
 115 120 125  
 Gly Ala Thr Val Tyr Arg Glu Trp Ala Pro Ala Ala Gln Glu Ala Gln  
 130 135 140  
 Leu Ile Gly Asp Phe Asn Asn Trp Asn Gly Ala Lys His Lys Met Glu  
 145 150 155 160

Lys Asp Lys Phe Gly Val Trp Ser Ile Lys Ile Ser His Val Asn Gly  
 165 170 175  
 Lys Pro Ala Ile Pro His Asn Ser Lys Val Lys Phe Arg Phe Arg His  
 180 185 190  
 Gly Gly Gly Ala Trp Val Asp Arg Ile Pro Ala Trp Ile Arg Tyr Ala  
 195 200 205  
 Thr Phe Asp Ala Ser Lys Phe Gly Ala Pro Tyr Asp Gly Val His Trp  
 210 215 220  
 Asp Pro Pro Ala Cys Glu Arg Tyr Val Phe Lys His Pro Arg Pro Pro  
 225 230 235 240  
 Lys Pro Asp Ala Pro Arg Ile Tyr Glu Ala His Val Gly Met Ser Gly  
 245 250 255  
 Glu Glu Pro Glu Val Ser Thr Tyr Arg Glu Phe Ala Asp Asn Val Leu  
 260 265 270  
 Pro Arg Ile Arg Ala Asn Asn Tyr Asn Thr Val Gln Leu Met Ala Ile  
 275 280 285  
 Met Glu His Ser Tyr Tyr Ala Ser Phe Gly Tyr His Val Thr Asn Phe  
 290 295 300  
 Phe Ala Val Ser Ser Arg Ser Gly Thr Pro Glu Asp Leu Lys Tyr Leu  
 305 310 315 320  
 Asp Lys Ala His Ser Leu Gly Leu Arg Val Leu Met Asp Val Val His  
 325 330 335  
 Ser His Ala Ser Asn Asn Val Thr Asp Gly Leu Asn Gly Tyr Asp Val  
 340 345 350  
 Gly Gln Asn Thr His Glu Ser Tyr Phe His Thr Gly Asp Arg Gly Tyr  
 355 360 365  
 His Lys Leu Trp Asp Ser Arg Leu Phe Asn Tyr Ala Asn Trp Glu Val  
 370 375 380  
 Leu Arg Phe Leu Leu Ser Asn Leu Arg Tyr Trp Asp Glu Phe Met Phe  
 385 390 395 400  
 Asp Gly Phe Arg Phe Asp Gly Val Thr Ser Met Leu Tyr His His His  
 405 410 415  
 Gly Ile Asn Lys Gly Phe Thr Gly Asn Tyr Lys Glu Tyr Phe Ser Leu  
 420 425 430  
 Asp Thr Asp Val Asp Ala Val Val Tyr Met Met Leu Ala Asn His Leu  
 435 440 445  
 Met His Lys Leu Leu Pro Glu Ala Thr Val Val Ala Glu Asp Val Ser  
 450 455 460

Gly	Met	Pro	Val	Leu	Cys	Arg	Pro	Val	Asp	Glu	Gly	Gly	Val	Gly	Phe	465	470	475	480
Asp	Tyr	Arg	Leu	Ala	Met	Ala	Ile	Pro	Asp	Arg	Trp	Ile	Asp	Tyr	Leu	485	490	495	
Lys	Asn	Lys	Asp	Asp	Arg	Lys	Trp	Ser	Met	Ser	Glu	Ile	Val	Gln	Thr	500	505	510	
Leu	Thr	Asn	Arg	Arg	Tyr	Thr	Glu	Lys	Cys	Ile	Ala	Tyr	Ala	Glu	Ser	515	520	525	
His	Asp	Gln	Ser	Ile	Val	Gly	Asp	Lys	Thr	Ile	Ala	Phe	Leu	Leu	Met	530	535	540	
Asp	Lys	Glu	Met	Tyr	Thr	Gly	Met	Ser	Asp	Leu	Gln	Pro	Ala	Ser	Pro	545	550	555	560
Thr	Ile	Asn	Arg	Gly	Ile	Ala	Leu	Gln	Lys	Met	Ile	His	Phe	Ile	Thr	565	570	575	
Met	Ala	Leu	Gly	Gly	Asp	Gly	Tyr	Leu	Asn	Phe	Met	Gly	Asn	Glu	Phe	580	585	590	
Gly	His	Pro	Glu	Trp	Ile	Asp	Phe	Pro	Arg	Glu	Gly	Asn	Asn	Trp	Ser	595	600	605	
Tyr	Asp	Lys	Cys	Arg	Arg	Gln	Trp	Ser	Leu	Val	Asp	Thr	Asp	His	Leu	610	615	620	
Arg	Tyr	Lys	Tyr	Met	Asn	Ala	Phe	Asp	Gln	Ala	Met	Asn	Ala	Leu	Asp	625	630	635	640
Glu	Phe	Ser	Phe	Leu	Ser	Ser	Ser	Lys	Gln	Ile	Val	Ser	Asp	Met	Asn	645	650	655	
Glu	Lys	Lys	Val	Ile	Val	Phe	Glu	Arg	Gly	Asp	Leu	Val	Phe	Val	Phe	660	665	670	
Asn	Phe	His	Pro	Asn	Lys	Thr	Tyr	Lys	Gly	Tyr	Lys	Val	Gly	Cys	Asp	675	680	685	
Leu	Pro	Gly	Lys	Tyr	Arg	Val	Ala	Leu	Asp	Ser	Asp	Ala	Leu	Val	Phe	690	695	700	
Gly	Gly	His	Gly	Arg	Val	Gly	His	Asp	Val	Asp	His	Phe	Thr	Ser	Pro	705	710	715	720
Glu	Gly	Met	Pro	Gly	Val	Pro	Glu	Thr	Asn	Phe	Asn	Asn	Arg	Pro	Asn	725	730	735	
Ser	Phe	Lys	Val	Leu	Ser	Pro	Pro	Arg	Thr	Cys	Val	Ala	Tyr	Tyr	Arg	740	745	750	
Val	Asp	Glu	Asp	Arg	Glu	Glu	Leu	Arg	Arg	Gly	Gly	Ala	Val	Ala	Ser	755	760	765	

Gly Lys Ile Val Thr Glu Tyr Ile Asp Val Glu Ala Thr Ser Gly Glu  
770 775 780

Thr Ile Ser Gly Gly Trp Lys Gly Ser Glu Lys Asp Asp Cys Gly Lys  
785 790 795 800

Lys Gly Met Lys Phe Val Phe Arg Ser Ser Asp Glu Asp Cys Lys Asp  
805 810 815

<210> 68

<211> 817

<212> PRT

<213> Zea mays

<400> 68

Met Leu Cys Leu Val Ser Pro Ser Ser Ser Pro Thr Pro Leu Pro Pro  
1 5 10 15

Pro Arg Arg Ser Arg Ser His Ala Asp Arg Ala Ala Pro Pro Gly Ile  
20 25 30

Ala Gly Gly Gly Asn Val Arg Leu Ser Val Leu Ser Val Gln Cys Lys  
35 40 45

Ala Arg Arg Ser Gly Val Arg Lys Val Lys Ser Lys Phe Ala Thr Ala  
50 55 60

Ala Thr Val Gln Asp Asp Lys Thr Met Ala Thr Ala Lys Gly Asp Val  
65 70 75 80

Asp His Leu Pro Ile Tyr Asp Leu Asp Pro Lys Leu Glu Ile Phe Lys  
85 90 95

Asp His Phe Arg Tyr Arg Met Lys Arg Tyr Leu Asp Gln Lys Gly Ser  
100 105 110

Ile Glu Glu Asn Glu Gly Ser Leu Glu Ser Phe Ser Lys Gly Tyr Leu  
115 120 125

Lys Phe Gly Ile Asn Thr Asn Asp Gly Thr Val Tyr Arg Glu Trp Ala  
130 135 140

Pro Ala Ala Gln Glu Ala Glu Leu Ile Gly Asp Phe Asn Asp Trp Asn  
145 150 155 160

Gly Ala Asn His Lys Met Glu Lys Asp Lys Phe Gly Val Trp Ser Ile  
165 170 175

Lys Ile Asp His Val Lys Gly Lys Pro Ala Ile Pro His Asn Ser Lys  
180 185 190

Val Lys Phe Arg Phe Leu His Gly Gly Val Trp Val Asp Arg Ile Pro  
195 200 205

Ala Leu Ile Arg Tyr Ala Thr Val Asp Ala Ser Lys Phe Gly Ala Pro  
210 215 220

Tyr 225	Asp	Gly	Val	His	Trp 230	Asp	Pro	Pro	Ala	Ser 235	Glu	Arg	Tyr	Thr	Phe 240
Lys	His	Pro	Arg	Pro 245	Ser	Lys	Pro	Ala	Ala 250	Pro	Arg	Ile	Tyr	Glu 255	Ala
His	Val	Gly	Met 260	Ser	Gly	Glu	Lys	Pro 265	Ala	Val	Ser	Thr	Tyr 270	Arg	Glu
Phe	Ala	Asp 275	Asn	Val	Leu	Pro	Arg 280	Ile	Arg	Ala	Asn	Asn 285	Tyr	Asn	Thr
Val	Gln	Leu	Met	Ala	Ile	Met 295	Glu	His	Ser	Tyr	Tyr 300	Ala	Ser	Phe	Gly
Tyr 305	His	Val	Thr	Asn 310	Phe	Phe	Ala	Val	Ser	Ser 315	Arg	Ser	Gly	Thr	Pro 320
Glu	Asp	Leu	Lys	Tyr 325	Leu	Asp	Lys	Ala	His 330	Ser	Leu	Gly	Leu	Arg 335	Val
Leu	Met	Asp	Val 340	Val	His	Ser	His	Ala 345	Ser	Asn	Asn	Val	Thr 350	Asp	Gly
Leu	Asn	Gly 355	Tyr	Asp	Val	Gly	Gln 360	Ser	Thr	Gln	Glu	Ser 365	Tyr	Phe	His
Ala 370	Gly	Asp	Arg	Gly	Tyr	His 375	Lys	Leu	Trp	Asp	Ser 380	Arg	Leu	Phe	Asn
Tyr 385	Ala	Asn	Trp	Glu	Val 390	Leu	Arg	Phe	Leu	Leu 395	Ser	Asn	Leu	Arg	Tyr 400
Trp	Asp	Glu	Phe 405	Met	Phe	Asp	Gly	Phe	Arg 410	Phe	Asp	Gly	Val	Thr 415	Ser
Met	Leu	Tyr	His 420	His	His	Gly	Ile	Asn 425	Val	Gly	Phe	Thr	Gly 430	Asn	Tyr
Gln	Glu	Tyr	Phe 435	Ser	Leu	Asp	Thr 440	Ala	Val	Asp	Ala 445	Val	Val	Tyr	Met
Met 450	Leu	Ala	Asn	His	Leu	Met 455	His	Lys	Leu	Leu	Pro 460	Glu	Ala	Thr	Val
Val 465	Ala	Glu	Asp	Val	Ser	Gly	Met	Pro	Val	Leu 475	Cys	Arg	Pro	Val 480	Asp
Glu	Gly	Gly	Val	Gly 485	Phe	Asp	Tyr	Arg	Leu 490	Ala	Met	Ala	Ile	Pro 495	Asp
Arg	Trp	Ile	Asp 500	Tyr	Leu	Lys	Asn	Lys 505	Asp	Asp	Ser	Glu	Trp 510	Ser	Met
Gly	Glu	Ile 515	Ala	His	Thr	Leu	Thr 520	Asn	Arg	Arg	Tyr	Thr 525	Glu	Lys	Cys

Ile Ala Tyr Ala Glu Ser His Asp Gln Ser Ile Val Gly Asp Lys Thr  
 530 535 540  
 Ile Ala Phe Leu Leu Met Asp Lys Glu Met Tyr Thr Gly Met Ser Asp  
 545 550 555 560  
 Leu Gln Pro Ala Ser Pro Thr Ile Asp Arg Gly Ile Ala Leu Gln Lys  
 565 570 575  
 Met Ile His Phe Ile Thr Met Ala Leu Gly Gly Asp Gly Tyr Leu Asn  
 580 585 590  
 Phe Met Gly Asn Glu Phe Gly His Pro Glu Trp Ile Asp Phe Pro Arg  
 595 600 605  
 Glu Gly Asn Asn Trp Ser Tyr Asp Lys Cys Arg Arg Gln Trp Ser Leu  
 610 615 620  
 Val Asp Thr Asp His Leu Arg Tyr Lys Tyr Met Asn Ala Phe Asp Gln  
 625 630 635 640  
 Ala Met Asn Ala Leu Asp Arg Phe Ser Phe Leu Ser Ser Ser Lys Gln  
 645 650 655  
 Ile Val Ser Asp Met Asn Glu Glu Lys Val Ile Val Phe Glu Arg Gly  
 660 665 670  
 Asp Leu Val Phe Val Phe Asn Phe His Pro Lys Lys Thr Tyr Glu Gly  
 675 680 685  
 Tyr Lys Val Gly Cys Asp Leu Pro Gly Lys Tyr Arg Val Ala Leu Asp  
 690 695 700  
 Ser Asp Ala Leu Val Phe Gly Gly His Gly Arg Val Gly His Asp Val  
 705 710 715 720  
 Asp His Phe Thr Ser Pro Glu Gly Pro Gly Val Pro Glu Thr Asn Phe  
 725 730 735  
 Asn Asn Arg Pro Asn Ser Phe Lys Val Leu Ser Pro Pro Arg Thr Cys  
 740 745 750  
 Val Ala Tyr Tyr Arg Val Asp Glu Ala Gly Ala Gly Arg Arg Leu His  
 755 760 765  
 Ala Lys Ala Glu Thr Gly Lys Thr Ser Pro Ala Glu Ser Ile Asp Val  
 770 775 780  
 Lys Ala Ser Arg Ala Ser Ser Lys Glu Asp Lys Glu Ala Thr Ala Gly  
 785 790 795 800  
 Gly Lys Lys Gly Trp Lys Phe Ala Arg Gln Pro Ser Asp Gln Asp Thr  
 805 810 815

Lys



<210> 69  
 <211> 765  
 <212> PRT  
 <213> Pisum sp.

<400> 69

Lys	Ser	Lys	Phe	Ser	Val	Val	Met	Thr	Asp	Asp	Lys	Ser	Thr	Met	Pro
1				5					10					15	
Ser	Val	Glu	Glu	Asp	Phe	Asp	Asn	Ile	Gly	Ile	Leu	Asn	Val	Asp	Ser
		20						25					30		
Ser	Leu	Glu	Pro	Phe	Lys	Asp	His	Phe	Lys	Tyr	Arg	Met	Lys	Arg	Tyr
	35						40					45			
Leu	His	Gln	Lys	Lys	Leu	Ile	Glu	Glu	Tyr	Glu	Gly	Gly	Leu	Gln	Glu
	50					55					60				
Phe	Ala	Lys	Gly	Tyr	Leu	Lys	Phe	Gly	Phe	Asn	Arg	Glu	Asp	Gly	Ile
65					70					75					80
Ser	Tyr	Arg	Glu	Trp	Ala	Pro	Ala	Ala	Gln	Glu	Ala	Gln	Ile	Ile	Gly
				85					90						95
Asp	Phe	Asn	Gly	Trp	Asn	Gly	Ser	Asn	Leu	His	Met	Glu	Lys	Asp	Gln
			100					105						110	
Phe	Gly	Val	Trp	Ser	Ile	Gln	Ile	Pro	Asp	Ala	Asp	Gly	Asn	Pro	Ala
	115						120					125			
Ile	Pro	His	Asn	Ser	Arg	Val	Lys	Phe	Arg	Phe	Lys	His	Ser	Asp	Gly
	130					135					140				
Val	Trp	Val	Asp	Arg	Ile	Pro	Ala	Trp	Ile	Lys	Tyr	Ala	Thr	Val	Asp
145					150					155					160
Pro	Thr	Arg	Phe	Ala	Ala	Pro	Tyr	Asp	Gly	Val	Tyr	Trp	Asp	Pro	Pro
				165					170					175	
Leu	Ser	Glu	Arg	Tyr	Gln	Phe	Lys	His	Pro	Arg	Pro	Pro	Lys	Pro	Lys
			180					185					190		
Ala	Pro	Arg	Ile	Tyr	Glu	Ala	His	Val	Gly	Met	Ser	Ser	Ser	Glu	Pro
		195					200						205		
Arg	Val	Asn	Ser	Tyr	Arg	Glu	Phe	Ala	Asp	Asp	Val	Leu	Pro	Arg	Ile
	210					215					220				
Arg	Glu	Asn	Asn	Tyr	Asn	Thr	Val	Gln	Leu	Met	Ala	Ile	Met	Glu	His
225					230					235				240	
Ser	Tyr	Tyr	Ala	Ser	Phe	Trp	Tyr	His	Val	Thr	Lys	Pro	Phe	Phe	Ala
				245					250					255	
Val	Ser	Ser	Arg	Ser	Gly	Ser	Pro	Glu	Asp	Leu	Lys	Tyr	Leu	Asp	Lys
			260					265					270		

Ala	His	Ser	Leu	Gly	Leu	Asn	Val	Leu	Met	Asp	Val	Val	His	Ser	His	
		275					280						285			
Ala	Ser	Asn	Asn	Val	Thr	Asp	Gly	Leu	Asn	Gly	Tyr	Asp	Val	Gly	Gln	
	290					295					300					
Ser	Ser	Gln	Gln	Ser	Tyr	Phe	His	Ala	Gly	Asp	Arg	Gly	Tyr	His	Lys	
305					310					315					320	
Leu	Trp	Asp	Ser	Arg	Leu	Phe	Asn	Tyr	Ala	Asn	Trp	Lys	Ser	Ser	Phe	
				325					330					335		
Leu	Leu	Ser	Asn	Leu	Arg	Tyr	Trp	Asp	Glu	Phe	Lys	Phe	Asp	Gly	Phe	
			340					345					350			
Arg	Phe	Asp	Gly	Val	Thr	Ser	Met	Leu	Tyr	His	His	His	Gly	Ile	Asn	
		355					360						365			
Met	Ala	Phe	Thr	Gly	Asp	Tyr	Asn	Glu	Tyr	Phe	Ser	Glu	Asp	Thr	Asp	
	370					375					380					
Val	Asp	Ala	Val	Val	Tyr	Met	Met	Leu	Ala	Asn	Ser	Leu	Val	His	Asp	
385					390					395					400	
Ile	Leu	Pro	Glu	Ala	Thr	Asp	Val	Ala	Glu	Asp	Val	Ser	Gly	Met	Pro	
				405					410					415		
Gly	Leu	Gly	Arg	Pro	Val	Ser	Glu	Val	Gly	Val	Gly	Phe	Asp	Tyr	Arg	
			420					425					430			
Leu	Ala	Met	Ala	Ile	Pro	Asp	Lys	Trp	Ile	Asp	Tyr	Leu	Lys	Asn	Lys	
		435					440					445				
Lys	Asp	Ser	Glu	Trp	Ser	Met	Lys	Glu	Ile	Ser	Leu	Asn	Leu	Thr	Asn	
	450					455					460					
Arg	Arg	Tyr	Thr	Glu	Lys	Cys	Ile	Ser	Tyr	Ala	Glu	Ser	His	Asp	Gln	
465					470					475					480	
Ser	Ile	Val	Gly	Asp	Lys	Thr	Ile	Ala	Phe	Leu	Leu	Met	Asp	Glu	Glu	
				485					490					495		
Met	Tyr	Ser	Ser	Met	Ser	Cys	Leu	Thr	Met	Leu	Ser	Pro	Thr	Ile	Asp	
			500					505					510			
Arg	Gly	Ile	Ser	Leu	His	Lys	Met	Ile	His	Phe	Ile	Thr	Met	Ala	Leu	
		515					520					525				
Gly	Gly	Asp	Gly	Tyr	Leu	Asn	Phe	Met	Gly	Asn	Glu	Phe	Gly	His	Pro	
	530					535					540					
Glu	Trp	Ile	Asp	Phe	Pro	Arg	Glu	Gly	Asn	Gly	Trp	Ser	Tyr	Asp	Lys	
545					550					555					560	
Cys	Arg	Leu	Thr	Gln	Trp	Asn	Leu	Val	Asp	Thr	Asn	His	Leu	Arg	Tyr	
				565					570					575		

Lys Tyr Met Asn Ala Phe Asp Arg Ala Met Asn Leu Leu Asp Lys Phe  
 580 585 590  
 Ser Ile Leu Ala Ser Thr Lys Gln Ile Val Ser Ser Thr Asn Asn Glu  
 595 600 605  
 Lys Val Ile Val Phe Glu Arg Gly Asp Leu Val Phe Val Phe Asn Phe  
 610 615 620  
 His Pro Glu Asn Thr Tyr Glu Gly Tyr Lys Val Gly Cys Asp Leu Pro  
 625 630 635 640  
 Gly Lys Tyr Arg Val Ala Leu Asp Ser Asp Ala Thr Glu Phe Gly Gly  
 645 650 655  
 His Gly Arg Val Gly His Asp Ala Asp Gln Phe Thr Ser Pro Glu Gly  
 660 665 670  
 Pro Gly Val Pro Glu Thr Asn Phe Asn Asn Arg Pro Asn Ser Phe Lys  
 675 680 685  
 Val Leu Ser Pro Pro His Thr Cys Val Val Tyr Tyr Arg Val Asp Glu  
 690 695 700  
 Arg Gln Glu Glu Ser Asn Asn Pro Asn Leu Gly Ser Glu Glu Thr Ala  
 705 710 715 720  
 Ala Ala Asp Thr Asp Val Ala Arg Ile Pro Asp Val Ser Glu Ser Glu  
 725 730 735  
 Asp Ser Asn Leu Asp Arg Glu Glu Asn Ser Asp Asp Ala Val Asp Ala  
 740 745 750  
 Gly Ile Phe Lys Val Glu Arg Glu Val Val Gly Asp Asn  
 755 760 765

<210> 70  
 <211> 852  
 <212> PRT  
 <213> Solanum sp.

<400> 70  
 Met Glu Ile Asn Phe Lys Val Leu Ser Lys Pro Ile Arg Gly Ser Phe  
 1 5 10 15  
 Pro Ser Phe Ser Pro Lys Val Ser Ser Gly Ala Ser Arg Asn Lys Ile  
 20 25 30  
 Cys Pro Ser Gln His Ser Thr Gly Leu Lys Phe Gly Ser Gln Glu Arg  
 35 40 45  
 Ser Trp Asp Val Ser Ser Thr Pro Lys Ser Arg Val Arg Lys Asp Glu  
 50 55 60  
 Arg Met Lys His Ser Ser Ala Ile Ser Ala Val Leu Thr Asp Asp Asn  
 65 70 75 80

Ser	Thr	Met	Ala	Pro	Leu	Glu	Glu	Asp	Val	Lys	Thr	Asp	Asn	Ile	Gly	85	90	95
Leu	Leu	Asn	Leu	Asp	Pro	Thr	Leu	Glu	Pro	Phe	Leu	Asp	His	Phe	Arg	100	105	110
His	Arg	Met	Lys	Arg	Tyr	Val	Asp	Gln	Lys	Met	Leu	Ile	Glu	Lys	Tyr	115	120	125
Glu	Gly	Pro	Leu	Glu	Glu	Phe	Ala	Gly	Gly	Tyr	Leu	Lys	Phe	Gly	Phe	130	135	140
Asn	Arg	Glu	Gly	Cys	Ile	Val	Tyr	Arg	Glu	Trp	Ala	Pro	Ala	Ala	Gln	145	150	155
Glu	Asp	Glu	Val	Ile	Gly	Asp	Phe	Asn	Gly	Trp	Asn	Gly	Ser	Asn	His	165	170	175
Met	Met	Glu	Lys	Asp	Gln	Phe	Gly	Val	Trp	Ser	Ile	Arg	Ile	Pro	Asp	180	185	190
Val	Asp	Ser	Lys	Pro	Val	Ile	Pro	His	Asn	Ser	Arg	Val	Lys	Phe	Arg	195	200	205
Phe	Lys	His	Gly	Asn	Gly	Val	Trp	Val	Asp	Arg	Ile	Pro	Ala	Trp	Ile	210	215	220
Lys	Tyr	Ala	Thr	Ala	Asp	Ala	Thr	Lys	Phe	Ala	Ala	Pro	Tyr	Asp	Gly	225	230	235
Val	Tyr	Trp	Asp	Pro	Pro	Pro	Ser	Glu	Arg	Tyr	His	Phe	Lys	Tyr	Pro	245	250	255
Arg	Pro	Pro	Lys	Pro	Arg	Ala	Pro	Arg	Ile	Tyr	Glu	Ala	His	Val	Gly	260	265	270
Met	Ser	Ser	Ser	Glu	Pro	Arg	Val	Asn	Ser	Tyr	Arg	Glu	Phe	Ala	Asp	275	280	285
Asp	Val	Leu	Pro	Arg	Ile	Lys	Ala	Asn	Asn	Tyr	Asn	Thr	Val	Gln	Leu	290	295	300
Met	Ala	Ile	Met	Glu	His	Ser	Tyr	Tyr	Gly	Ser	Phe	Gly	Tyr	His	Val	305	310	315
Thr	Asn	Phe	Phe	Ala	Val	Ser	Ser	Arg	Tyr	Gly	Asn	Pro	Glu	Asp	Leu	325	330	335
Lys	Tyr	Leu	Asp	Lys	Ala	His	Ser	Leu	Gly	Leu	Gln	Val	Leu	Val	Asp	340	345	350
Val	Val	His	Ser	His	Ala	Ser	Asn	Asn	Val	Thr	Asp	Gly	Leu	Asn	Gly	355	360	365
Tyr	Asp	Val	Gly	Gln	Gly	Ser	Gln	Glu	Ser	Tyr	Phe	His	Ala	Gly	Asp	370	375	380

Arg Gly Tyr His Lys Leu Trp Asp Ser Arg Leu Phe Asn Tyr Ala Asn  
 385 390 395 400  
 Trp Glu Val Leu Arg Phe Leu Leu Ser Asn Leu Arg Tyr Trp Asp Glu  
 405 410 415  
 Phe Asn Phe Asp Gly Phe Arg Phe Asp Gly Val Thr Ser Met Leu Tyr  
 420 425 430  
 Val His His Gly Ile Asn Met Gly Phe Thr Gly Asn Tyr Asn Glu Tyr  
 435 440 445  
 Phe Ser Glu Ala Thr Asp Val Asp Ala Val Val Tyr Met Met Leu Ala  
 450 455 460  
 Asn Asn Leu Ile His Lys Ile Leu Pro Glu Ala Thr Val Val Ala Glu  
 465 470 475 480  
 Asp Val Ser Gly Met Pro Gly Leu Gly Arg Pro Val Ser Glu Gly Gly  
 485 490 495  
 Val Gly Phe Asp Tyr Arg Leu Ala Met Ala Ile Pro Asp Lys Trp Ile  
 500 505 510  
 Asp Tyr Leu Lys Asn Lys Asn Asp Glu Glu Trp Ser Met Lys Glu Ile  
 515 520 525  
 Thr Ser Ser Leu Thr Asn Arg Arg Tyr Thr Glu Lys Cys Ile Ala Tyr  
 530 535 540  
 Ala Glu Ser His Asp Gln Ser Ile Val Gly Asp Lys Thr Ile Ala Phe  
 545 550 555 560  
 Leu Leu Met Asp Lys Glu Met Tyr Ser Gly Met Ser Cys Leu Thr Asp  
 565 570 575  
 Ala Ser Pro Val Ile Asp Arg Gly Ile Ala Leu His Lys Met Ile His  
 580 585 590  
 Phe Phe Thr Met Ala Leu Gly Gly Asp Gly Tyr Leu Asn Phe Met Gly  
 595 600 605  
 Asn Glu Phe Gly His Pro Glu Trp Ile Asp Phe Pro Arg Glu Gly Asn  
 610 615 620  
 Asn Trp Ser Tyr Asp Lys Cys Arg Arg Gln Trp Asn Leu Ala Asp Ser  
 625 630 635 640  
 Asp His Leu Arg Tyr Lys Tyr Met Asn Ala Phe Asp Arg Ala Met Asn  
 645 650 655  
 Ser Leu Asp Lys Phe Ser Phe Leu Ala Ser Gly Lys Gln Ile Val Ser  
 660 665 670  
 Ser Met Asp Glu Glu Asn Lys Val Ile Val Phe Glu Arg Gly Asp Leu  
 675 680 685

Val Phe Val Phe Asn Phe His Pro Lys Asn Thr Tyr Glu Gly Tyr Lys  
 690 695 700  
 Val Gly Cys Asp Leu Pro Gly Lys Tyr Arg Val Ala Leu Asp Ser Asp  
 705 710 715 720  
 Ala Trp Glu Phe Gly Gly His Gly Arg Thr Gly His Asp Val Asp His  
 725 730 735  
 Phe Thr Ser Pro Glu Gly Pro Gly Val Pro Glu Thr Asn Phe Asn Gly  
 740 745 750  
 Arg Gln Ile Pro Ser Lys Cys Cys Leu Leu Arg Glu His Val Trp Leu  
 755 760 765  
 Ile Thr Glu Leu Met Asn Ala Cys Gln Lys Leu Lys Ile Thr Arg Gln  
 770 775 780  
 Thr Phe Val Val Ser Tyr Tyr Gln Gln Pro Val Ser Arg Arg Val Thr  
 785 790 795 800  
 Arg Asn Leu Lys Ile Arg Tyr Leu Gln Ser Val Thr Thr Asn Ala Tyr  
 805 810 815  
 Gln Lys Leu Lys Phe Thr Arg Gln Thr Phe Val Ser Tyr Tyr Gln Gln  
 820 825 830  
 Pro Ile Leu Arg Arg Thr Arg Lys Leu Lys Asp Ser Leu Ser Thr Asn  
 835 840 845  
 Ile Ser Thr Phe  
 850

<210> 71  
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 35 40 45  
 Leu Trp Pro Arg Lys Ala Lys Ser Lys Ser Phe Val Ser Val Thr Ala  
 50 55 60  
 Arg Gly Asn Lys Ile Ala Ala Thr Thr Gly Tyr Gly Ser Asp His Leu  
 65 70 75 80  
 Pro Ile Tyr Asp Leu Asp Leu Lys Leu Ala Glu Phe Lys Asp His Phe  
 85 90 95

Asp Tyr Thr Arg Asn Arg Tyr Ile Asp Gln Lys His Leu Ile Glu Lys  
 100 105 110  
 His Glu Gly Ser Leu Glu Glu Phe Ser Lys Gly Tyr Leu Lys Phe Gly  
 115 120 125  
 Ile Asn Thr Glu His Gly Ala Ser Val Tyr Arg Glu Trp Ala Pro Ala  
 130 135 140  
 Ala Glu Glu Ala Gln Leu Ile Gly Asp Phe Asn Asn Trp Asn Gly Ser  
 145 150 155 160  
 Gly His Lys Met Ala Lys Asp Asn Phe Gly Val Trp Ser Ile Arg Ile  
 165 170 175  
 Ser His Val Asn Gly Lys Pro Ala Ile Pro His Asn Ser Lys Val Lys  
 180 185 190  
 Phe Arg Phe Arg His His Gly Val Trp Val Asp Gln Ile Pro Ala Trp  
 195 200 205  
 Ile Arg Tyr Ala Thr Val Thr Ala Ser Glu Ser Gly Ala Pro Tyr Asp  
 210 215 220  
 Gly Leu His Trp Asp Pro Pro Ser Ser Glu Arg Tyr Val Phe Asn His  
 225 230 235 240  
 Pro Arg Pro Pro Lys Pro Asp Val Pro Arg Ile Tyr Glu Ala His Val  
 245 250 255  
 Gly Val Ser Gly Gly Lys Leu Glu Ala Gly Thr Tyr Arg Glu Phe Pro  
 260 265 270  
 Asp Asn Val Leu Pro Cys Leu Arg Ala Thr Asn Tyr Asn Thr Val Gln  
 275 280 285  
 Leu Met Gly Ile Met Glu His Ser Asp Ser Ala Ser Phe Gly Tyr His  
 290 295 300  
 Val Thr Asn Phe Phe Ala Val Ser Ser Arg Ser Gly Thr Pro Glu Asp  
 305 310 315 320  
 Leu Lys Tyr Leu Asp Lys Ala His Ser Leu Gly Leu Arg Val Leu Met  
 325 330 335  
 Asp Val Val His Ser His Ala Ser Asn Asn Val Ile Asp Gly Leu Asn  
 340 345 350  
 Gly Tyr Asp Val Gly Gln Ser Ala His Glu Ser Tyr Phe Tyr Thr Gly  
 355 360 365  
 Asp Lys Gly Tyr Asn Lys Leu Trp Asn Gly Arg Leu Phe Asn Tyr Ala  
 370 375 380  
 Asn Trp Glu Val Leu Arg Phe Leu Leu Ser Asn Leu Arg Tyr Trp Asp  
 385 390 395 400

Glu Phe Met Phe Asp Gly Phe Arg Phe Val Gly Val Thr Ser Met Leu  
 405 410 415  
 Tyr Asn His Asn Gly Ile Asn Met Ser Phe Asn Gly Asn Tyr Lys Glu  
 420 425 430  
 Tyr Ile Gly Leu Asp Thr Asn Val Asp Ala Phe Val Tyr Met Met Leu  
 435 440 445  
 Ala Asn His Leu Met His Lys Leu Leu Pro Glu Ala Ile Val Val Ala  
 450 455 460  
 Val Asp Val Ser Gly Met Pro Val Leu Cys Arg Pro Val Asp Glu Gly  
 465 470 475 480  
 Gly Leu Gly Phe Asp Tyr Arg Gln Ala Met Thr Ile Pro Asp Arg Trp  
 485 490 495  
 Ile Asp Tyr Leu Glu Asn Lys Gly Asp Gln Gln Trp Ser Met Ser Ser  
 500 505 510  
 Val Ile Ser Gln Thr Leu Thr Asn Arg Arg Tyr Pro Glu Lys Phe Ile  
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 Ala Tyr Ala Glu Arg Gln Asn His Ser Ile Val Gly Ser Lys Thr Met  
 530 535 540  
 Ala Phe Leu Leu Met Asp Trp Glu Thr Tyr Ser Gly Met Ser Ala Leu  
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 Asp Pro Asp Ser Pro Thr Ile Asp Arg Ala Ile Ala Leu Gln Lys Met  
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 Ile His Phe Ile Thr Met Ala Leu Gly Gly Asp Ser Tyr Leu Lys Phe  
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 Met Gly Asn Glu Tyr Met Asn Ala Phe Val Gln Ala Val Asp Thr Pro  
 595 600 605  
 Ser Lys Cys Ser Phe Leu Ser Ser Ser Asn Gln Thr Ala Ser His Met  
 610 615 620  
 Asn Glu Glu Lys Gly Ser Ala Phe Thr Lys Gly Phe Thr His Leu Arg  
 625 630 635 640  
 Ser Gly Cys Tyr Glu Pro Ser Leu Pro Ser Thr Ser Ser Cys Ala Leu  
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 Pro Gly Cys Ile Phe Cys Cys Gly Leu Phe Lys Gly Glu Phe  
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